PB87-115614

Pesticide Fact Sheet Number 78: Fenoxycarb

(U.S.) Environmental Protection Agency
Washington, DC

1 Feb 86

U.S. Department of Commerce
National Technical Information Service
NTIS

50272-101

REPORT DOCUMENTATION PAGE | 1. REPORT NO. | 2. | 3. PB87-115614

4. Title and Subtitle: EPA Pesticide Fact Sheets - FENOXYCARB No. 78

5. Report Date: Issued 2/1/86

6.

7. Author(s): EPA, Office of Pesticide Programs, Registration Division

8. Performing Organization Rept. No.: 540/FS-87- 061

9. Performing Organization Name and Address:
US Environmental Protection Agency
Office of Pesticide Programs
Registration Division, TS-767C
401 M Street, S.W.
Washington, D.C. 20460

10. Project/Task/Work Unit No.

11. Contract(C) or Grant(G) No.
(C)
(G)

12. Sponsoring Organization Name and Address:
Same as #9

13. Type of Report & Period Covered

14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

This document contains up-to-date chemical information, including a summary of the Agency's regulatory position and rationale, on a specific pesticide or group of pesticides. A Fact Sheet is issued after one of the following actions has occurred.

1. Issuance or reissuance of a registration standard,
2. Issuance of each special review document,
3. Registration of a significantly changed use pattern,
4. Registration of a new chemical, or
5. An immediate need for information to resolve controversial issues relating to a specific chemical or use pattern.

17. Document Analysis a. Descriptors

Pesticides, regulations, Chemical Information Fact Sheet, Use Patterns, Science Findings

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement:
Publicly Available

19. Security Class (This Report): Unclassified

20. Security Class (This Page): Unclassified

21. No. of Pages: 5

22. Price

(See ANSI-Z39.18)

REPRODUCED BY
U.S. DEPARTMENT OF COMMERCE
NATIONAL TECHNICAL
INFORMATION SERVICE
SPRINGFIELD, VA. 22161

OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

United States
Environmental Protection
Agency

Office of Pesticides and Toxic Substances
Office of Pesticide Programs (TS-766C)
Washington, DC 20460

EPA

Pesticide Fact Sheet

Name of Chemical: FENOXYCARB
Reason for Issuance: REGISTRATION STANDARD / NEW CHEMICAL
Date Issued: Feb.1, 1986
Fact Sheet Number: 78

1. Description of Chemical

Generic Name: (Ethyl[2-(4-phenoxyphenoxy)ethyl] carbamate)

Common Name: fenoxycarb

Trade Names: Logic, Ro 13-5223

EPA/OPP Chemical Code (Shaughnessy Number: 128801

Chemical Abstracts Service (CAS) Number: 72490-01-8

Year of Initial Registration: 1985

Pesticide Type: Insecticide/Miticide

U.S. and Foreign Producers: MAAG Agrochemicals

2. Use Patterns and Formulations

Fenoxycarb is registered for use as a bait to control fire ants in or on turf, lawns, and nonagricultural land such as airport turfs, parks and golf courses. Applications are made as single mound (1 to 3 level tablespoons/ mound) and broadcasting (apply uniformly with ground equipment calibrated to give correct dosage [1 to 1.5 lb/A]).

Fenoxycarb is formulated as a 1.0 percent bait.

3. Science Findings

Summary Science Statement:

Fenoxycarb is an Insect Growth Regulator (IGR) which is moderately acutely toxic to human and other nontarget terrestrial organisms. Fenoxycarb is highly toxic to aquatic invertebrates. The current No Observable Effect Level (NOEL) is based on a rat 52-week interim report, which satisfies the requirement for a rat 90-day feeding study. Available data are sufficient to fully assess the toxicology of fenoxycarb for the subject use pattern, its fate in the environment, and the exposure of humans

and nontarget organisms to the chemical or its degradates. Environmental fate data requirements has been satisfeid with the exception of soil photolysis (data gap).

Chemical Characteristics:

Technical fenoxycarb is a light brown lumpy powder, stable under normal conditions. Slight hydrolysis occurs in aqueous solution at pH 3,7, and 9 at 35°C and 50°C for period of time up to 70 days. It is very soluble (250 g/l solvent) in most organic solvents(e.g., acetone, chloroform, diethyl ether, diethyl formamide, ethyl acetate, methanol, toluene) hexane. It is slightly soluble in hexane(5 g/l solvent).

Toxicological Characteristics:

Fenoxycarb is moderately toxic (Tox. Category III from acute oral and dermal routes of exposure).

Toxicology studies on fenoxycarb are as follows:

- Oral LD_{50} in rats: LD_{50} > 16,800 mg/kg
- Dermal LD_{50} in rats: LD_{50} > 5000 mg/kg; effects included dyspnea, curved body position, ruffled fur, sedation, diarrhea. No deaths occurred.
- Metabolism study in rats: 90-92% excreted in 96 hours. Organs did not show persistent residues.
- Rat 52-week Interim Report: NOEL = 200ppm
- Teratogenicity: Teratogenic effects were not observed at dose levels up to 300 mg/kg/day which was the highest dose tested.
- Mutagenicity: Nonmutagenic
- Dermal sensitization: Not sensitizing
- 21-Day dermal: NOEL = 200mg/kg/day(slight erythema; elevated liver weight at top dose)

Physiological and Biological Characteristics:

Fenoxycarb is an insecticide that disrupts the development of the pest. Fenoxycarb has an insect specific mode of action exhibiting strong juvenile hormone activity. It inhibits metamorphosis to the adult stage, induces interference with the molting of early instar larvae, and produces certain ovicide and delayed larvicide/ adulticide effects in various insect species.

Environmental Characteristics:

Fenoxycarb is stable to hydrolysis at pH 3-9 and temperatures up to 50 °C. However, fenoxycarb is expected to photodegrade in pure and natural water with a half-life of 5 hours.

Field studies indicate that under exaggerated and normal use conditions dissipation of fenoxycarb in soil is rapid; residues are no longer detectable 3 days after application.

Soil column studies using fresh and aged soils indicate a low potential for leaching. Adsorption/desorption studies indicate moderate to strong soil binding. Fish exposed to fenoxycarb in water will bioaccumulate fenoxycarb to concentration 300x greater than the concentration in the water. However, the fish will release 99% of the residues within 2 weekss when placed in water containing no fenoxycarb.

Ecological Characteristic:

Avian Oral LD_{50} = > 3000 mg/kg (mallard ducks)

Avian Dietary LC_{50} = 11574 ppm (bobwhite quail). Data show that fenoxycarb is practically nontoxic to birds.

Fish LC_{50} = 1.6 ppm for rainbow trout and 1.86 ppm for bluegill. Data show that fenoxycarb is moderately toxic to fish.

Data submitted indicate that fenoxycarb is low to moderate in toxicity to honeybees. Bee hazard is decreased because the pesticide will be formulated as a grit or corncob bait, which will result in little or no bee exposure. Thus, currently registered uses of the formulated product should present no hazard to bees.

It is unlikely that the use of fenoxycarb would adversely affect endangered aquatic species because of the low acute toxicity of fenoxycarb to this group and the low use rates. The expected concentrations in 6 inches of water are less than 1/20 the fish LC_{50} and 1/20 the daphnia LC_{50}.

It is unlikely that the use of fenoxycarb would affect avian species because of its low acute toxicity and low use rate.

Tolerance Assessment:

There are no tolerances established for fenoxycarb.

4. Summary of Regulatory Position and Rationale

Fenoxycarb qualifies for a Section 3(c)(7)(C) registration based on submission of an almost complete data base, a finding of no unreasonable adverse effects, and a finding that registration is in the public interest. The public interest finding is based on the chemical's relatively low toxicity and its effectiveness (as attested to by USDA) in fire ant control. The only study still to be submitted is a soil photolysis study which is not typically required of a surface applied formulation. The study is being required in this instance because vegetation may shield the product from sunlight. Because this data gap is a minor one, and because the registrant could not have been expected to know of the data requirement, the chemical is being conditionally registered at this time.

- The following Environmental Hazards text is required on manufacturing-use products because of the hazards posed to aquatic invertebrates.

  This pesticide is toxic to aquatic invertebrates. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or public water unless this product is specifically identified and addressed in an NPDES permit. Do not discharge effluent containing this product into sewer systems without previously notifying the sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

- The following environmental statements are required for end-use products.

  This pesticide is toxic to aquatic invertebrates. Drift and runoff from

- treated areas may be hazardous to aquatic invertebrates in adjacent aquatic sites. Do not apply directly to water. Do not contaminate water by cleaning the equipment or disposal of wastes.

Due to the use pattern and the low toxicological characteristic to mammals, a reentry precautionary statement is not required.

5. Summary of Major Data Gaps

° Environmental Fate	Due Date
- Soil Photolysis	2/86

6. Contact Person at EPA:

Timothy A. Gardner
Product Manager 17
Insecticide-Rodenticide Branch (TS-767C)
401 M Street SW.
Washington, DC 20460
(703) 557-2690

DISCLAIMER: The information presented in this Chemical Information Fact Sheet is for informational purposes only and may not be used to fulfill data requirements for pesticide registration and reregistration.